ndep
NEVADA DIVISION OF ENVIRONMENTAL PROTECTION
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STATE OF NEVADA
Department of Conservation & Natural Resources
DIVISION OF ENVIRONMENTAL PROTECTION
BUREAU OF CORRECTIVE ACTIONS
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Kenny C. Guinn, Governor
Allen Biaggi, Director
Leo M. Drozdoff, P.E., Administrator
READER

October 9, 2006

Mr. Randall Jackson
Health, Safety & Environmental Director
DCI Management Group Ltd.
4510 W. 63rd Terrace
Prairie Village, KS 66208

**CERTIFIED MAIL**
**RETURN RECEIPT REQUESTED**
7005 0390 0002 0502 4232

Subject: **Requirements for Submittal of Source Removal and Groundwater Corrective Action Plans, Soil Gas Sampling Work Plan, and Additional Off-Site Groundwater Characterization Work Plan**

Facility: Maryland Square Site, 3661 S. Maryland Parkway
Las Vegas, Nevada
H-00086

Dear Mr. Jackson:

This letter memorializes our meeting of October 3, 2006 and requires DCI to submit Corrective Action Plans (CAPs) for soil in the source area and for off-site groundwater, and work plans for soil gas sampling and characterization of off-site groundwater.

To ensure prompt action, the DCI is required to provide a CAP for Source Removal by November 13, 2006. We concur with your offer at the meeting to promptly conduct remediation of the contaminated onsite soil, through means such as excavation and offsite disposal. The contaminated onsite soil constitutes a continuing source of tetrachloroethylene (PCE) to the shallow groundwater. Although the Nevada Division of Environmental Protection (NDEP) proposed 100 µg/kg PCE in soil as an interim remediation goal (to be verified by confirmation sampling) during the meeting, we are flexible to adjusting this value based on cost/benefit analysis. The NDEP concurs with DCI that source removal is the top priority for this site, which has PCE concentrations of 120,000 µg/kg reported for onsite soils. This concentration is approximately half the saturation limit of pure PCE in soil (approximately 230,000 µg/kg), exceeds U.S. Environmental Protection Agency's (EPA's) residential (480 µg/kg) and industrial (1,300 µg/kg) preliminary remediation goals (PRGs), and also exceeds EPA's soil screening levels, which range from 3 to 60 µg/kg to be protective of groundwater. The most current PRG table is available at: http://www.epa.gov/region9/waste/sfund/prg/index.html and information on soil screening is available at: http://www.epa.gov/superfund/resources/soil/index.htm

Consultation with the NDEP specialist in bioremediation (Dr. Bennett Kottler) has indicated that on-site ex-situ "bio piles" will not effectively decrease concentrations of PCE, which typically biodegrades under anaerobic conditions. As a result, please do not include this ex-situ treatment as an option in the source remedy.

The CAP for Source Removal shall include scaled site figures and cross-sections depicting:

- Locations, depths, and results of historical soil samples;
- Additional proposed borings and the areal extent and depth of proposed cleanup activities;
- Locations of utility corridors and scaled schematic of floor drains at the former dry cleaners
- Water-level contour maps (with heads posted).

The CAP for Source Removal shall also contain:

- A conceptual site model (follow ASTM Guide E1689-95)
- A schedule for soil excavation, transport, and disposal.

Finally, the CAP for Source Removal shall include a schedule for submittal of a report documenting completion of Source Removal activities by January 10, 2007 or 45 days after NDEP approval of the Source Removal CAP, whichever is earlier.

DCI shall also provide a work plan for active soil gas sampling at offsite locations on the mall property and within road right-of-ways in the residential area east of the mall. This work plan will also include collection of soil samples for geotechnical analysis (soil moisture, bulk density, and grain density - ASTM D-2216, D-2937, and D-854). This plan must include scaled site figures showing locations of proposed sampling locations, along with water-level contour maps (with heads posted). DCI is required to submit the Work Plan for Soil Gas Sampling for review by November 13, 2006. The Work Plan for Soil Gas Sampling shall include a schedule for submittal of a Soil Gas Sampling Report by December 15, 2006, or 30 days after NDEP approval of the Work Plan for Soil Gas Sampling, whichever is earlier.

Finally, DCI must prepare a CAP for Offsite Groundwater, with plans to reduce concentrations of PCE in offsite groundwater to an interim remedial target of 100 µg/l. The due date for the Groundwater CAP is set for February 5, 2007. This due date should allow for coordination with offsite property owners, consideration of the additional data collected for soil gas, soil properties, quarterly groundwater samples from monitoring wells, and collection of another groundwater sample from the golf course well that contained 4.9 µg/L PCE, according to data reviewed at the office of Southern Nevada Water Authority [SNWA].

The CAP for Offsite Groundwater shall include scaled site figures and cross-sections depicting:

- Locations and results for historical groundwater samples;
- Water-level contour maps (with heads posted);
- Additional proposed monitoring wells, including two wells along Spencer Street to constrain the north-south boundaries of the plume, and two wells east of the Golf Course (the latter may be installed after analytical data from the Spencer Street wells are obtained);
- Locations of utility corridors, including sewer lines under streets and the Boulevard Mall.

In addition, the CAP for Offsite Groundwater shall include:

- A table summarizing the geographic coordinates (northings and eastings) for all wells and borings, well screen elevations, total depth of each well, and water level elevations measured over time for each well;
- A summary of all groundwater data collected for the site, including trend analysis for wells with at least six independent sampling events.

**Summary of Requirements**

In accordance with Nevada Administrative Code 445A.2269, 445A.227, 445A.2271, 445A.22725, and 445A.2273, DCI is required to provide the following submittals by the due dates provided:

| Report | Due Date |
|---|---|
| Corrective Action Plan for Source Removal | November 13, 2006 / extended to 12/4 |
| Work Plan for Soil Gas Sampling | November 13, 2006 |
| Corrective Action Plan for Offsite Groundwater | February 5, 2007 |
| Report on Soil Removal and Confirmation Sampling Results | TBD |
| Report on Soil Gas and Soil Geotechnical Data | TBD |
| Report on Additional Characterization and Remediation of Offsite Groundwater | TBD |

TBD = To be determined, based on date of NDEP concurrence with corresponding CAP or Work Plan.

If acceptable submittals are not received by the due dates above, then NDEP will initiate additional action.

Please contact me at (775) 687-9496 or msiders@ndep.nv.gov if you have any questions regarding these requirements.

Sincerely,

Mary A. Siders

Mary A. Siders, Ph.D.
Environmental Scientist III
Bureau of Corrective Actions
Nevada Division of Environmental Protection
901 S. Stewart Street, Suite 4001
Carson City, NV 89701

Enclosures: 1. October 3, 2006 Meeting Minutes
2. October 3, 2006 Meeting Agenda

cc: w/enc

Scott Ball, URS Corporation, 7180 Pollock Drive, Suite 200, Las Vegas, Nevada 89119
Jim Najima, Chief, Bureau of Corrective Actions, NDEP, Carson City, Nevada 89701
Greg Lovato, Supervisor, BCA, NDEP, Carson City, Nevada
Art Gravenstein, P.E., Supervisor, BCA, NDEP, Carson City, Nevada
Franklin Levy, Maryland Square LLC, 3355 South Las Vegas Boulevard, Las Vegas, NV 89109
Nick Till, CB Richard Ellis, Inc., 3993 Howard Hughes Parkway, Suite 700, Las Vegas, NV 89109-0961
Travis Harmon, Boulevard Mall, 3528 S. Maryland Parkway, Las Vegas, NV 89109
Jeff Palmer, SECOR International Inc., 5755 Sandhill Rd., #A, Las Vegas, NV 89120-2532
Pat Reid , Buffalo Reality, South Highway 160, Pahrump, NV 89048
Michael Stebbins, Tomlinson Zisko LLP, 200 Page Mill Road , Palo Alto, California 94306
Dennis Campbell, South Nevada Health District, PO Box 3902, Las Vegas, NV 89127

w/o enc

Rob Mrowka, Planning Manager, Clark County Division of Environmental Planning, 500 S. Grand Central Pkwy, 1st floor, P.O. Box 551741, Las Vegas, NV 89155-1741

# ATTACHMENTS

**Minutes from October 3, 2006 meeting to discuss Maryland Square Site, 3661 S. Maryland Parkway, Las Vegas, Nevada**

Attendees:
Shannon Harbour, NDEP-LV
Mary Siders, NDEP-CC
Greg Lovato, NDEP-CC (remote by video conference)
Scott Ball, URS
Randall Jackson, DCI

Agenda:
See attached

Minutes:
After introductions, Mary (new NDEP case officer for the site) noted that NDEP had reviewed the case file and summarized the current case status, the case history, and additional requirements for characterization and cleanup. Mary also noted that NDEP has re-assigned the case to the Carson City office to give the case the attention and resources needed. NDEP also drafted a submittal schedule for work plans and reports.

After describing the source area, all parties agreed that excavation/remediation of contaminated site soils was the number one priority. Randall (DCI) agreed to excavate/remediate the site soils as soon as possible. NDEP requested a "Source Removal Corrective Action Plan" by November 6, 2006.

Scott Ball (URS) stated that preliminary estimates indicated 400 to 700 cubic yards of soil would need to be excavated and transported to a disposal facility. Estimates for excavation, transport, treatment (thermal desorption) and disposal at the Beatty solid-waste landfill could be as much as $250,000. (Additional estimates from NDEP's Bureau of Waste Management indicated that costs for this would likely be in the $250/cubic yard range; suggesting that costs would likely be in the $100,000 to $200,000 range). NDEP noted that excavation is generally the quickest and least expensive option for remediation of PCE-contaminated dry cleaning sites. Scott Ball asked how the industrial soil PRG related to the 100 µg/kg target soil cleanup number. NDEP clarified that the PRGs are applicable to direct soil exposure and not necessarily protective of groundwater. (Note that the EPA PRG table for 2004 lists 1,300 µg/kg as the PRG for industrial soil; and from 3 to 60 µg/kg for soil concentrations protective of groundwater.)

Mary (NDEP) stated that the plume dimensions are approximately 400 feet wide by 4,000 feet long, with a thickness assumed to be 20 feet (for purposes of mass calculation). Based on this plume size and assuming an average concentration of 1000 µg/L, mass of dissolved PCE is from 400 to 800 pounds, depending on porosity value used in the equation. This does not take into account the mass of PCE in the onsite soils. The plume is estimated to be traveling at a seepage velocity of 0.05 to 0.5 feet per day, based on hydraulic conductivity and hydraulic gradient in the area.

Mary (NDEP) then noted that the golf course irrigation well that lies within the projected trend of the plume, due east from MW-27 (220 to 350 µg/L PCE), has a total depth of 746 feet and produced a recent sample (2-14-06) containing 4.9 µg/L PCE (data from SNWA). Although vertical gradients in the area are generally upward to neutral, and the hydraulic communication is generally limited between shallow groundwater in the uppermost water-bearing unit (Las Vegas aquitard) and the deeper aquifer (which is pumped for water supply), there appears to be seepage into this well. This may be the result of a preference pathway or a leaky seal or cracked casing in the well.

Randall (DCI) suggested that there may be another source of PCE from a former dry cleaners within the Boulevard Mall; however, this suggestion was not substantiated by DCI with either soil data or other documentation. Shannon (former NDEP case officer) said that suggestion had been offered in the past, but had never been substantiated. Mary noted that the concentrations of PCE in a well could vary by an order of magnitude or more within a few vertical feet, so basing this suggestion on concentration contours of PCE was not a good indicator of a second source area. (Note: depth-discrete sampling is needed to evaluate how PCE concentrations vary with depth).

Randall also indicated that DCI does not have the financial resources to pay for cleanup of the dissolved-phase plume downgradient of the source site location. Greg stated that NDEP could consider amending quarterly groundwater monitoring requirements to provide additional funding for specific cleanup actions.

Addressing the issue of potential receptors, Mary noted that NDEP would take the responsibility of notifying residents in the subdivision east of Boulevard mall. A preliminary risk assessment using default parameters for porosity and permeability indicated a potentially unacceptable chronic risk to residents in some homes via intrusion of PCE vapors. (Note: NDEP conducted the risk assessment using EPA's online calculator and the default parameter for soil porosity, because site-specific geotechnical data were not available.) To provide a more realistic and site-specific evaluation of potential risk, geotechnical and soil gas data are needed. DCI agreed to collect soil gas data, since it was reasonable and of modest cost. He also requested that DCI be kept informed about public notification.

Greg (NDEP) noted that it would be beneficial to have source removal planned or underway when notifying the residents about the contaminant plume in groundwater.

NDEP summarized the case history (see Attachment B), noting that contamination was first found and reported (NDEP spill report) in late November, 2000. The first corrective action plan (Converse, June 2003) received NDEP concurrence; however, work never commenced, because the responsibility for the cleanup was assumed by Al Phillips the Cleaners, as documented in an attorney's letter dated February 27, 2004. DCI then took over for Al Phillips and retained URS as their consultant in March of 2004. No remediation of the source or plume has taken place to date (October, 2006).

NDEP provided a summary of additional requirements for characterization for cleanup and delineation of the offsite plume (see Item 4 of agenda), including installation of several more monitoring wells to determine the location of the downgradient plume, sampling of golf course wells, collection of soil gas data and geotechnical data. NDEP also requested some additional data analysis and visualization for the area (e.g., cross sections, head maps with water levels posted for each well, maps showing location of utility corridors, etc.)

Action Items:

NDEP will check costs for disposal of excavated soils at Beatty landfill (done).

NDEP will contact the new Maryland Square property owner and the management company for the mall

NDEP will prepare meeting minutes

NDEP will provide a letter summarizing the agreements made at the meeting, and providing additional information for DCI and URS.

For additional information on remediation of dry cleaning sites, see the following website:
http://www.drycleancoalition.org/profiles/#search

AGENDA FOR OCTOBER 3, 2006 MEETING IN LAS VEGAS
MARYLAND SQUARE PCE SITE

## A. Meeting Agenda

1. **Introductions**
2. **Current case status**
   - **a. Source Term:** Onsite soil contains 120,000 µg/kg PCE (280,000 µg/kg is separate phase). Source mass of PCE still contributing to groundwater contamination.
   - **b. Dissolved Phase Contamination**
     - i. **Dimensions:** Plume appears to be 400' wide, 4,000' long, and perhaps 20' deep (latter dimension not well defined). Also need to bound width of plume at Spencer Street.
     - ii. **Mass Estimates:** Assuming above dimensions and average concentration of 1,000 µg/L yields between 400 to 800 lbs PCE in dissolved phase.
     - iii. **Estimated Seepage Velocity:** K of 1 to 10 ft/day and gradient of 0.01 ft/ft yields seepage velocity of 0.05 to 0.5 ft/day. MW-27 is 3,600' and 350 µg/L PCE
   - **c. Potential Receptors**
     - i. **Waters of state:** Groundwater, potentially to surface water including tributaries to Las Vegas Wash.
     - ii. **Vapor intrusion**
3. **NDEP review of Case History**
4. **NDEP summary of Additional Requirements**
   - **a. Additional Characterization of Offsite Plume**
     - i. Install two wells on Spencer Street, north and south of the presently drawn plume, about opposite of intersections with Cherokee and Ottawa.
     - ii. Install two wells east of golf course (Cochise Lane area).
     - iii. Prepare cross sections across and along the plume, with lithology, screen lengths, water levels, and concentrations posted.
   - **b. Characterization for Cleanup**
     - i. Source Area – Prepare scaled maps with additional borings to delineate PCE in onsite soil. (Northing and easting data required for all existing and future borings and wells, onsite and offsite). Also prepare a plan view map of entire plume area, with locations of all borings and monitoring wells.
     - ii. Conceptual Site Model – Develop CSM, following ASTM Guide E1689-95.
     - iii. Groundwater Gradients – Prepare head maps, with groundwater elevations posted for each well (data collected during the same sampling event).
     - iv. Utility Corridors – Prepare utility maps, including sewer lines, plumbing, utilities, construction schematic of floor drains at the former dry cleaners. Includes preparation of maps of utility corridors (preferential pathways) in streets and under the Boulevard Mall.

v. Soil Gas and Geotechnical Data – Collect soil gas data along eastern side of mall parking lot at 50 foot intervals and some sampling locations adjacent to wells MW-19, MW-20, and MW-2. Collect geotechnical data for soil samples from borings for all new wells and from onsite soils. Soil Moisture Content (ASTM D 2216), Soil Bulk Density (ASTM D 2937), Grain Density (ASTM D 854), Total Porosity (calculated from soil bulk density and grain density), and Particle Size Analysis.

vi. Golf Course wells – Locate and sample existing irrigation wells for golf course, get northing/easting data and measure water levels also.

**c. Cleanup**

i. Source removal (100 µg/kg) – Must remediate or remove soils containing more than the target concentration of 100 µg/kg PCE (for protection of groundwater). Collect step-out samples at intervals no more than 10 feet to confirm.

*ii.* Off-site dissolved phase (100 µg/L) – Remediate offsite groundwater. Target level for remediating PCE plume in offsite groundwater initially set at 100 µg/L. (Note that NAC regulation states remediation to the MCL, for PCE = 5 µg/L.) ***NAC 445A.22735*** *Contamination of groundwater: Establishment of action levels. (b) The presence of a hazardous substance, hazardous waste or a regulated substance in groundwater at a level of concentration equal to the maximum contaminant level (MCL) for that substance or waste established pursuant to the Safe Drinking Water Act, 42 U.S.C. §§ 300f et seq., and 40 C.F.R. Part 141, as those sections existed on October 3, 1996.*

**d. Schedule**

**i. <u>Work Plans</u>**

1. **"Source Removal Corrective Action Plan (CAP),"** including confirmation sampling and characterization sampling onsite. DUE TO NDEP IN **30 DAYS (November 6, 2006)**
2. **"Groundwater CAP"** at mall property (for example, AS/SVE system). DUE TO NDEP IN **120 DAYS (February 5, 2007).**
3. **"Soil Gas and Geotechnical Sampling"** at eastern end of mall, at 50-foot intervals (may want to considers pairing some of the soil gas sampling locations with MW-19, MW-20, and MW-21). DUE TO NDEP in **30 DAYS (November 6, 2006).**

**ii. <u>Reports</u>**

1. **"Soil Removal and Confirmation Sampling Results."** DUE TO NDEP **45 DAYS** AFTER CONCURRENCE WITH WORK PLAN.
2. **"Groundwater Remedy Construction and Start-Up."** DUE TO NDEP **120 DAYS** AFTER CONCURRENCE WITH WORK PLAN.
3. **"Soil Gas Data."** DUE TO NDEP **30 DAYS** AFTER CONCURRENCE WITH WORK PLAN.

5. **<u>Public Notification</u>** NDEP will handle.

**B. Summary of Case History**

1. **Date of known release: Spill Report** – November 28, 2000
2. **Date NDEP first required Corrective Action Plan:** April 2, 2003
3. **Characterization of responses to requirement for CAP**
    a. **Early (Converse): June 27, 2003** submittal of CAP for NDEP review
        i. **February 27, 2004** – Attorney's letter stating that Al Phillips the Cleaners has assumed responsibility for the site.
    b. **Current (URS): March 11, 2004** – URS retained by DCI. (Need contact information updated for all parties involved.)
        i. **April 29, 2004** meeting with NDEP, DCI, URS, counsel established that: URS has all Converse information, URS will collect more data from source area, URS will characterize offsite groundwater (PCE plume to east), and will provide a Work Plan within 30 days.
        ii. Work Plan for Subsurface Investigation submitted **June 4, 2004**; NDEP comments on Work Plan provided **August 18, 2004**. Revised Work Plan submitted **September 10, 2004** and NDEP concurrence (qualified) on **November 17, 2004.**
        iii. **December 16, 2004** – NDEP letter to DCI requiring commencement of quarterly groundwater sampling and reporting within 30 days of receiving analytical data.
        iv. Wells MW-17, MW-18, MW-22, MW-23, MW-24, and MW-25 installed in March 2005. Report for subsurface investigation and groundwater data submitted to NDEP on **July 11, 2005.**
        v. **September 6, 2005** – NDEP letter requiring submittal of CAP by **October 24, 2005** and a Work Plan to characterize the extent of the offsite plume by **October 7, 2005.**
        vi. **October 20, 2005** – NDEP letter not concurring with October 6, 2005 "work plan" and required a revised Work Plan for offsite characterization by **November 3, 2005.**
        vii. **October 28, 2005** – URS submits "CAP letter"
        viii. **November 2, 2005** – URS submits revised "Work Plan letter"
        ix. **November 3, 2005** – NDEP meeting with DCI and URS regarding the "CAP" (a 2-page letter that merely explained why no corrective actions were proposed).
        x. **November 8, 2005** – NDEP concurs with "Revised Work Plan for Additional Downgradient Groundwater Characterization" and requires analytical results by **December 29, 2005** from direct-push groundwater sampling.
        xi. **November 16, 2005** – NDEP letter postponing submittal of CAP until further notice, pending discussion of development plans with current property owner, and development of a Pilot Study Work Plan due **December 29, 2005.**
        xii. **December 5, 2005** – URS letter to NDEP describing conversation with current property owner, who intends to demolish the site.
        xiii. **December 27, 2005** – URS submits a "Pilot Study Work Plan" (a 4-page letter) to NDEP.

xiv. **February 2, 2006** – URS submits "Revised Work Plan for Additional Downgradient Characterization" to November 2 "Work Plan letter" and notes that direct-push sampling met with refusal.

xv. **February 6, 2006** – URS submits Quarterly Groundwater Sampling Report for December 2005.

xvi. **February 14, 2006** – NDEP concurs with "Revised Work Plan for Additional Downgradient Characterization" and the installation of MW-26 and MW-27, and requires summary report by **April 17, 2006**.

xvii. **April 25, 2006** – URS submits Report for Quarterly Groundwater Monitoring and Installation of Additional Monitoring Wells.

xviii. **July 31, 2006** – URS submits Report for Quarterly Groundwater Monitoring for June 2006.

xix. **August 23, 2006** – NDEP letter to DCI and URS requiring a meeting (today's October 3, 2006 meeting) and a schedule for implementation of corrective action and additional work. (NDEP is providing a schedule of deadlines at today's **October 3, 2006** meeting.)

xx. **October 3, 2006** – Meeting with DCI, URS, and NDEP to discuss corrective actions and additional characterization.